

E0905 / 95-307

SELECTIVE ADDRESS TABLE AGING IN A NETWORK  
SWITCH BASED ON APPLICATION STATE  
DETERMINED FROM A RECEIVED DATA PACKET

ABSTRACT OF THE DISCLOSURE

A network switch, configured for performing layer 2 and layer 3 switching in an Ethernet (IEEE 802.3) network without blocking of incoming data packets, includes a network switch port having a packet classifier module configured for evaluating an incoming data packet on an instantaneous basis. The packet classifier module performs simultaneous comparisons between the incoming data stream of the data packet and multiple templates configured for identifying respective data protocols. Each template is composed of a plurality of min terms, wherein each min term specifies a prescribed comparison operation within a selected data byte of the incoming data packet. Hence, the packet classifier module is able to monitor data flows between two network nodes interacting according to a prescribed network application. The packet classifier module determines the application state for a prescribed network application from a received layer 2 data packet, enabling switching logic within the network switch to utilize application-specific aging intervals for respective network applications such as HTTP, SNMP, ftp, Telnet, etc. in order to delete aged address entries from a network switch address table based on the supported network application. Determination of the application state from the received layer 2 data packet also enables the network switch to detect the end of a data flow for deletion of the corresponding address entry from the network switch address table.

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